

AVONSIDE B4 KIT

Thank you for purchasing one of our kits! We really hope you enjoy building it. If you have any queries please do get in contact:

railwaymanianet@gmail.com

We would love to see your completed models so please do send us your photos and videos!

RECOMMENDED TOOLS

Flush cutters or snips

Scalpel or modelling knife (recommend a Swann-Morton knife) - always use sharp blades

Files - Jewellers files of differing shapes are useful

Pin vice drill for opening out handrail holes - drill sizes 0.45-0.55mm and 0.8 to 1mm

Pair of pliers for bending handrails

Wet and dry sandpaper

RECOMMENDED MATERIALS

Cyanoacrylate/Super Glue - recommend high viscosity so it doesn't run everywhere

Roket card glue or similar - for attaching bits like the chimney (in case you need to remove it again)

Deluxe Materials Glue 'n Glaze - useful for glazing the cab windows after painting and weathering

Filler primer (aerosol cans available from Halfords, eBay etc.) - use in ventilated areas with a mask

Squadron green putty or other filler material

THE INSTRUCTIONS

Personally I barely ever read instructions and my mark of a good kit is one that is so obvious to assemble that it does not really need them. I struggle with large blocks of text so we have tried to include as many pictures as possible, so that people like me can understand them!

-Corwin

NOTES AND ADVICE

The kit is designed to fit the Hornby Peckett B2 0-6-0ST chassis and is comprised of three main components:

Running board, Saddle tank and boiler, Cab

It is recommended to prep and paint these components before fixing them all together.

The running board may be quite flexible during assembly - don't worry! When the other components are attached, they will give it rigidity.

The kit is 3D printed in resin. This material retains good detail but can be quite brittle so please do take care when handling it as it will snap under pressure. The running board and steps are at the most risk as they are thin.

If a part has arrived bent we recommend warming the part up by submerging it in hot water, applying gentle pressure and allowing it to cool whilst held in the preferred shape. Running boards often appear curved along their length, this is due to how thin they are, assembly onto the other main components and chassis normally rectifies this without the need for bending it into shape.

COMPROMISES FROM THE PROTOTYPE

We have tried very hard to make this kit as close to the prototypes as possible. In order for it to fit the Hornby Peckett B2 chassis, a few compromises have been made. These are:

- Larger wheels
- Wheelbase is offset rather than equal
- Buffers have been lowered slightly to counter the extra height from the wheels
- Overall height has been reduced slightly to avoid having a big gap between the Avonside tanks and the Peckett boiler

THANKS

This kit was designed by Adam White, without his skill and talent it would not have happened at all, so I am very grateful, especially as he put up with all my pedantic changes and quibbles over tiny details!

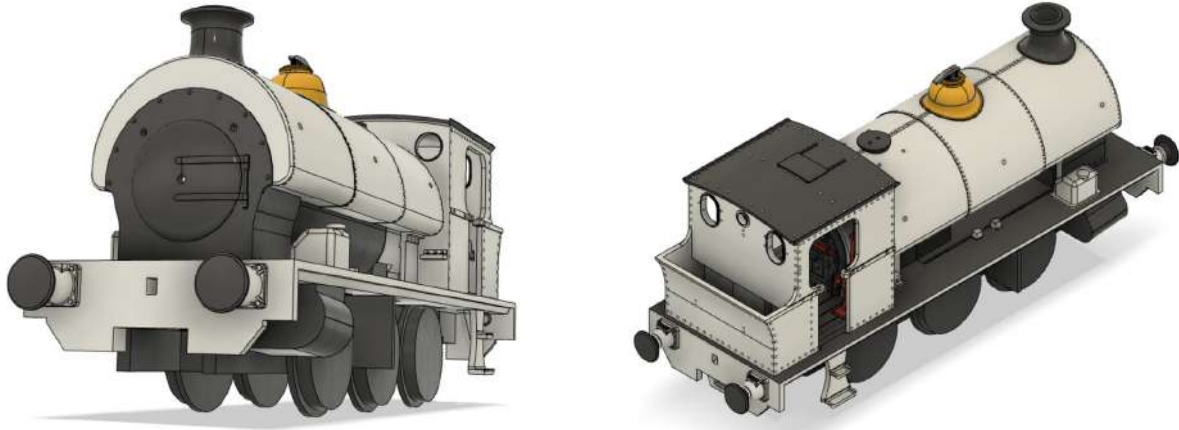
The key measurements came from taking a tape measure to 'Portbury' at M Shed, thanks to Chris Ecclestone for access to the loco.

Thank you also to Paul Atkinson who gave excellent feedback and advice on the CAD models, especially the later 'square tank' versions, to try and get them as close to the prototype as possible given the constraints.

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MODELLING PROTOTYPES - VARIATIONS

The kits have been designed to represent specific prototypes, but to allow multiple locos to be represented with a few small tweaks. We always recommend checking photographs of the locomotive you would like to model, but here are a few examples:



'Portbury' and her sisters at Avonmouth Docks all had the distinctive oval rear windows, but only Portbury had the lower bufferbeam extension. To model the other PBA locos, this should be sawn off.

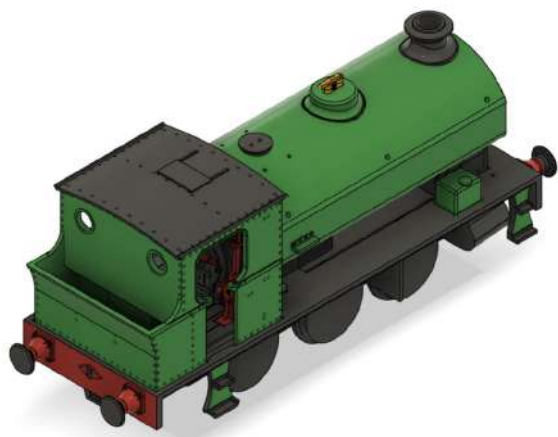
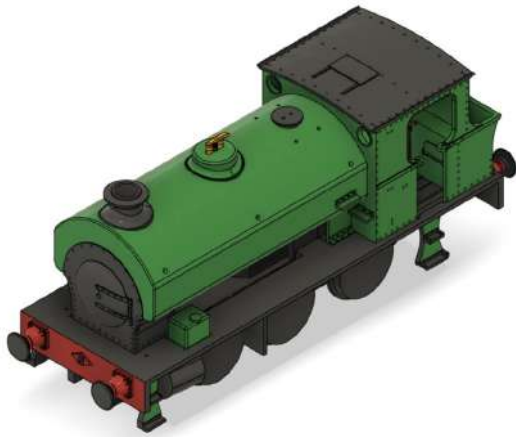
'Portbury' has an extra buffer set supplied with it. This is because Portbury has 3 Peckett buffers and one Avonside. The Peckett ones have the distinctive cross hatching on top.

Her sister locos at Avonmouth wore different buffers too, so it's worth checking photographs. The Bristol Harbour Railway blog <https://bristolharbourrailway.co.uk/> has a page all about the Avonmouth locos.



ISC No.2/'Edwin Hulse' is supplied with an additional chimney with the distinctive conical cap. We presume at some point the rolled cap was replaced with a basic cast item. The standard chimney is also included.

Photo courtesy Gordon Edgar, with thanks.



'Mersey Docks and Harbour Board No.3' has flush sided tanks, unlike the 3-piece riveted version on the other examples. This allows it to represent similar locos such as 'Cranford' (preserved at the Appleby and Frodingham Railway Preservation Society) by adding the distinctive smokebox base flanges from styrene and modifying the smokebox door.



'St. Dunstan' - the cab rivets have been retained on the kit in order to allow modelling of locos with riveted cabs and tanks, but to accurately portray the Snowdown colliery locomotive 'St. Dunstan', these should be mostly filed and sanded flat. The tank rivets can also be sanded flat to represent other locos that have 3 piece non-riveted tanks, such as 'Earl Fitzwilliam' based at Elsecar Heritage Railway.

BEFORE PAINT

SUPPORTS AND FLASH

Use a modelling knife with a sharp blade (recommend a Swann-Morton) to slice the remaining 'nubs' of the 3D printing supports off as flush as you can get them, then sand or file the surface flat.

HANDRAIL HOLES

Holes for handrails have been printed as part of the model. However, due to the small size, they may have been clogged with excess resin and require drilling out, we recommend doing this even if the holes appear clear, the recommended tool is a pin vice drill.

Handrail mounting holes should be opened out to .45-0.55mm for handrails mounted directly to the body, and 0.8mm-1mm for the handrail knobs.

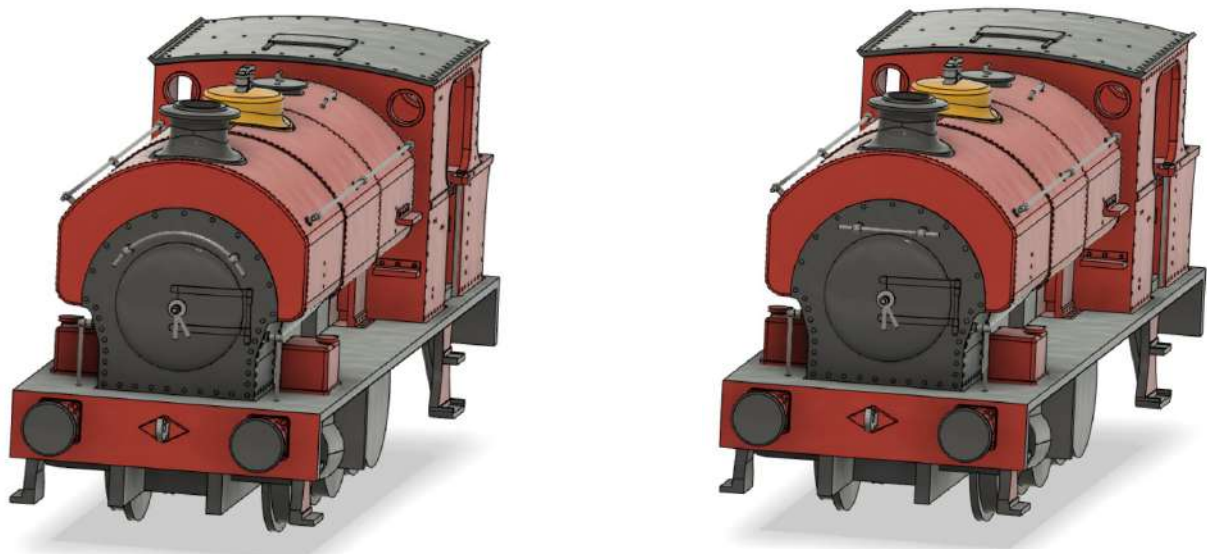
All the B4s represented by the kit had 3 handrail knobs on each side of the saddle tank, and a pair of grab rails near the tank filler. The tank filler itself can be drilled to accept a handrail.

Cab side horizontal handrails were generally only found on the early (round) tank versions with the narrower cabs, there are dimples in the cab side to allow this. Bend the handrails to shape using pliers or a vice.

The cab cutout vertical handrails and the smokebox side vertical handrails (SQUARE tank only) need to be fitted after the 3 main components have been glued together.

FRONT SMOKEBOX HANDRAIL (SQUARE TANK ONLY)

There are two ways of mounting the front handrail above the smokebox door depending on if you want a curved or straight handrail. From the outside the smokebox face looks flat, but hold it up to the light and you will see (because the light shines through the plastic) that there are plugged holes for four handrail knobs. Select the two you want to use, mark and drill the plugs out from the outside.



PREP AND PAINT

One of the reasons for splitting the model into separate sections was to make it easier to prepare for paint. 3D printing tends to have layers and these need to be sanded and filled in order to get a smooth surface.

The knack is to use a bit of filler primer and sanding but not too much, so as to fill and smooth the layers but also not lose the rivets and other small details.



The front of the saddle tank section after a coat of filler primer and some fine wet and dry sandpaper (used wet) - note that the primer has filled in the gaps in the layers

ACCESSORIES

Each accessory pack includes:

- | | | |
|-------------------|-------------------|--|
| -Buffers x 4 | -Sandboxes x 2 | -Handrail knobs x8 (ROUND) or x10 (SQUARE) |
| -Chimney | -Firebox backhead | -.45mm Handrail Wire |
| -Dome/Valve cover | -Regulator lever | -Dummy coupling hooks |
| -Safety valve | -Reverser | |
| -Water filler lid | -Handbrake | |

Accessories differ in detail depending on the kit but the fitment is the same.

The printed accessories are supplied on a 'float' with support material included. To remove the support material, we recommend using some snips to slice the supports and then the scalpel/modelling knife to cut off the 'nubs' left over from the supports.

Top tip: don't detach the safety valve from the support material until you are ready to paint and glue it into the safety valve cover. Otherwise you will inevitably knock it off the desk and spend a long time on your hands and knees trying to find it. Imagine how I found that out...



Snipping the accessories off the support material - this is better than trying to force them off which could result in the accessory breaking

The chimney and dome/safety valve cover have locating lugs on them and corresponding slots on the top of the boiler. It is good to check fitment and file away the lugs as necessary to ensure a flush fit before glueing in place. The lip of the chimney and safety valve cover should only just protrude above the saddle tank to give the impression of it being a much thinner material than it really is.

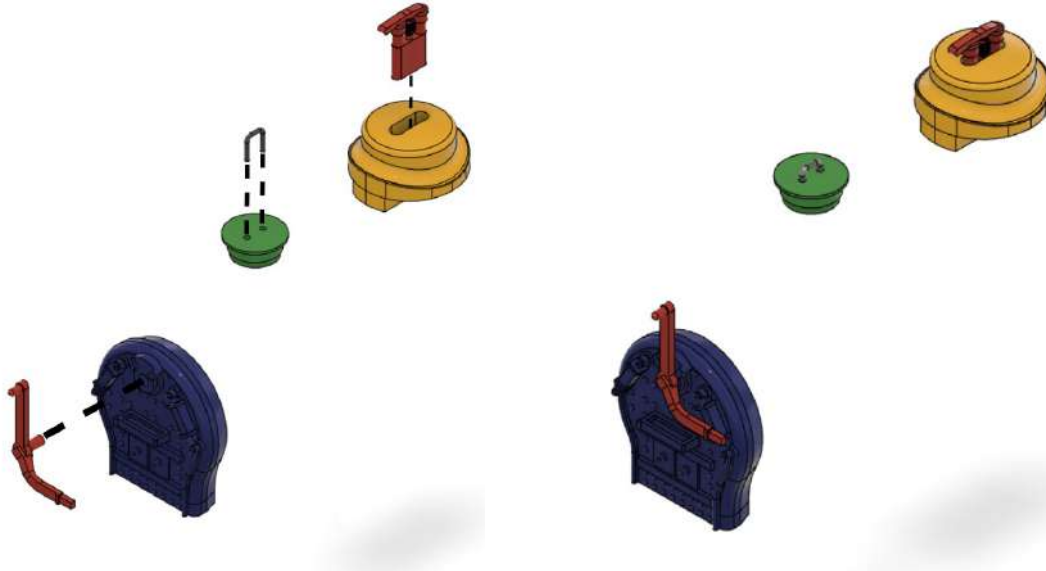


The accessories included in the kit. Reverser, handbrake, sandboxes, firebox backhead (with regulator handle fitted)

ASSEMBLY

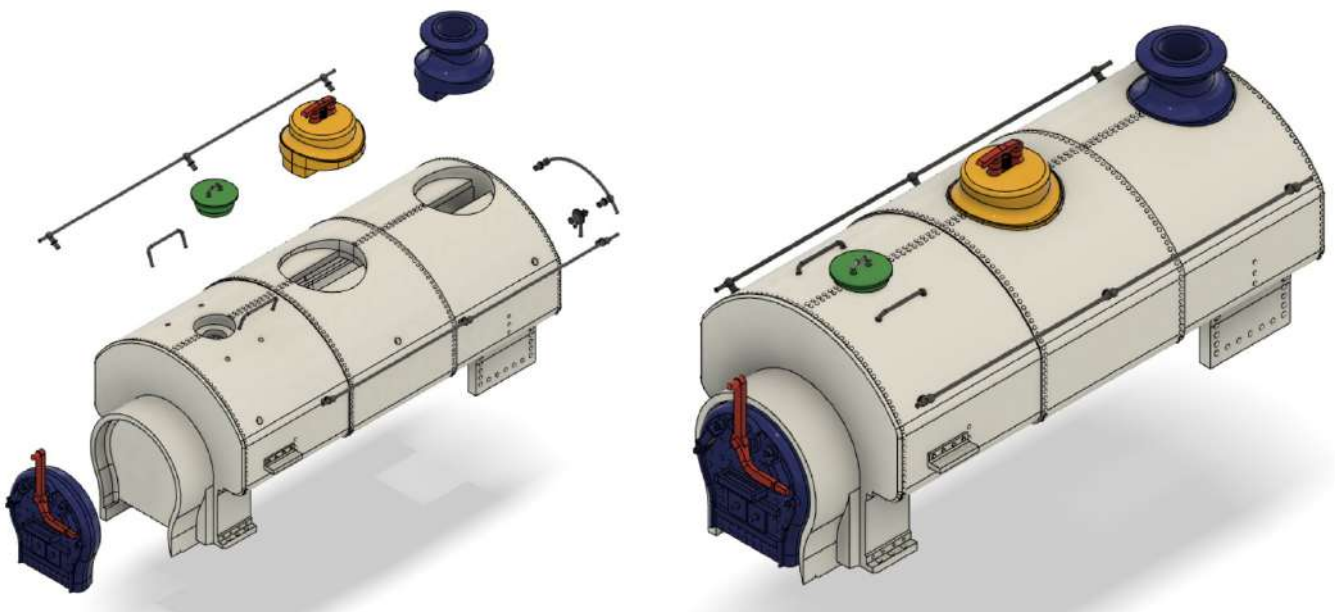
Once everything is painted, it's time to put the loco together!

SADDLE TANK AND BOILER



Regulator fits into the firebox backhead.

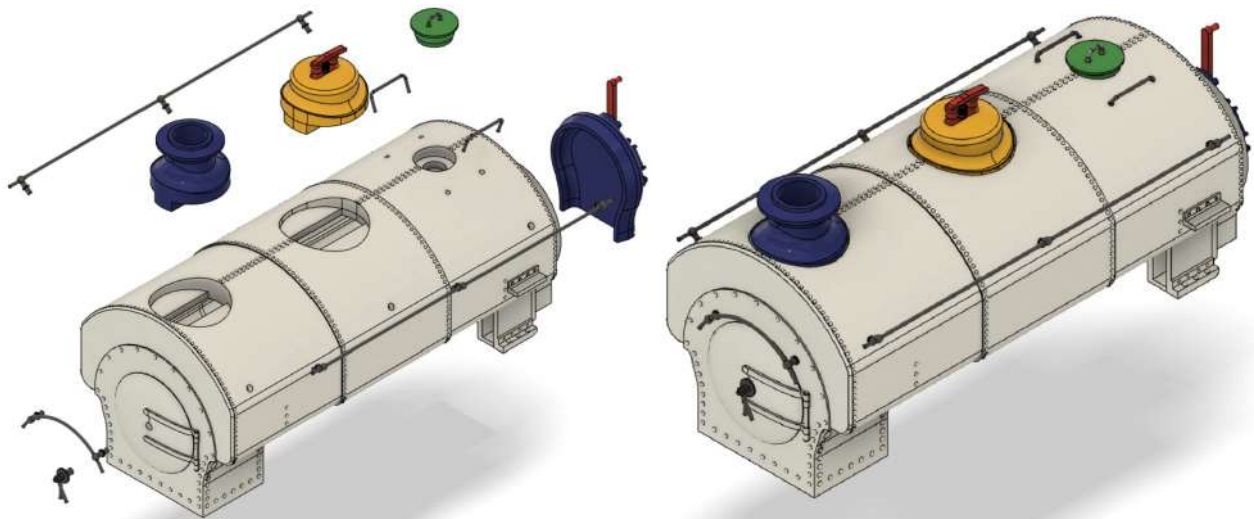
.45mm wire is bent into a U shape and fitted to the filler cap (.45mm holes drilled 2mm apart). Safety valve slots into the safety valve cover (note: the safety valve nearly always faces with the 'tail' to the rear of the loco. Some photos show it the other way, always best to consult pictures if you are modelling a prototype. Make sure it is parallel to the locating tab on the underside of the dome).



Grab rails (.45mm holes 6mm apart), handrails, boiler fittings and firebox backhead all slot into the boiler and saddle tank. Note: It may be necessary to file the underside of the dome and chimney to ensure a snug fit. Always do a 'dry run' before glue is added.



Fitting the firebox backhead to the boiler (demo model shown)



Smokebox front handrail and smokebox door dart fitted.

The dart needs to be assembled before fitting to the loco and the handles should be trimmed to the desired length before being glued into place.

NOTES ON PRE-ASSEMBLING HANDRAILS

Cut the hand rail roughly to length, thread one hand rail knob on and glue into place.

Thread the other knobs on and add bluetack or tape to the end of the handrail to stop them falling off.

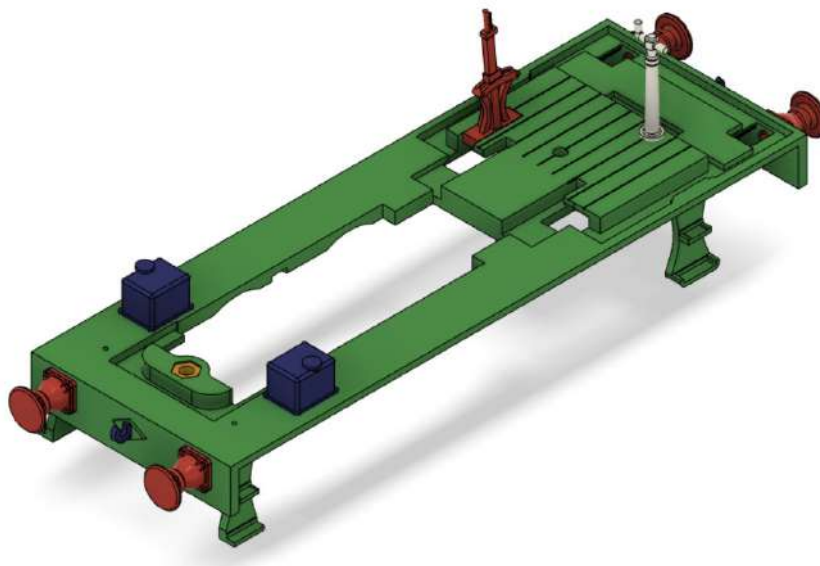
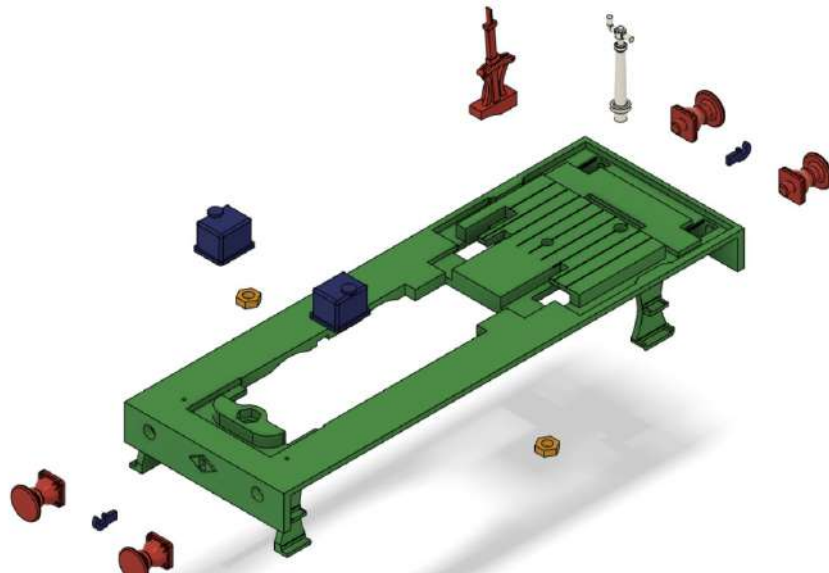
Offer the assembly up to the saddle tank and locate all the handrail knobs, glue the knobs onto the handrail and once dry remove from the tank to be painted separately, or fix into place to paint with the body.

For curved handrails form the curve first by bending the handrail wire over a cylinder such as a thick pen barrel, then thread the knobs on.

CAB INTERIOR AND RUNNING BOARD DETAILS

Handbrake and reverser have holes in the cab to glue them into - note that the reverser can only go one way around as it has a notch in the base to clear the rear wheel. The handbrake should be glued in with the handle parallel to the bufferbeams to allow the cab to fit over it easily.

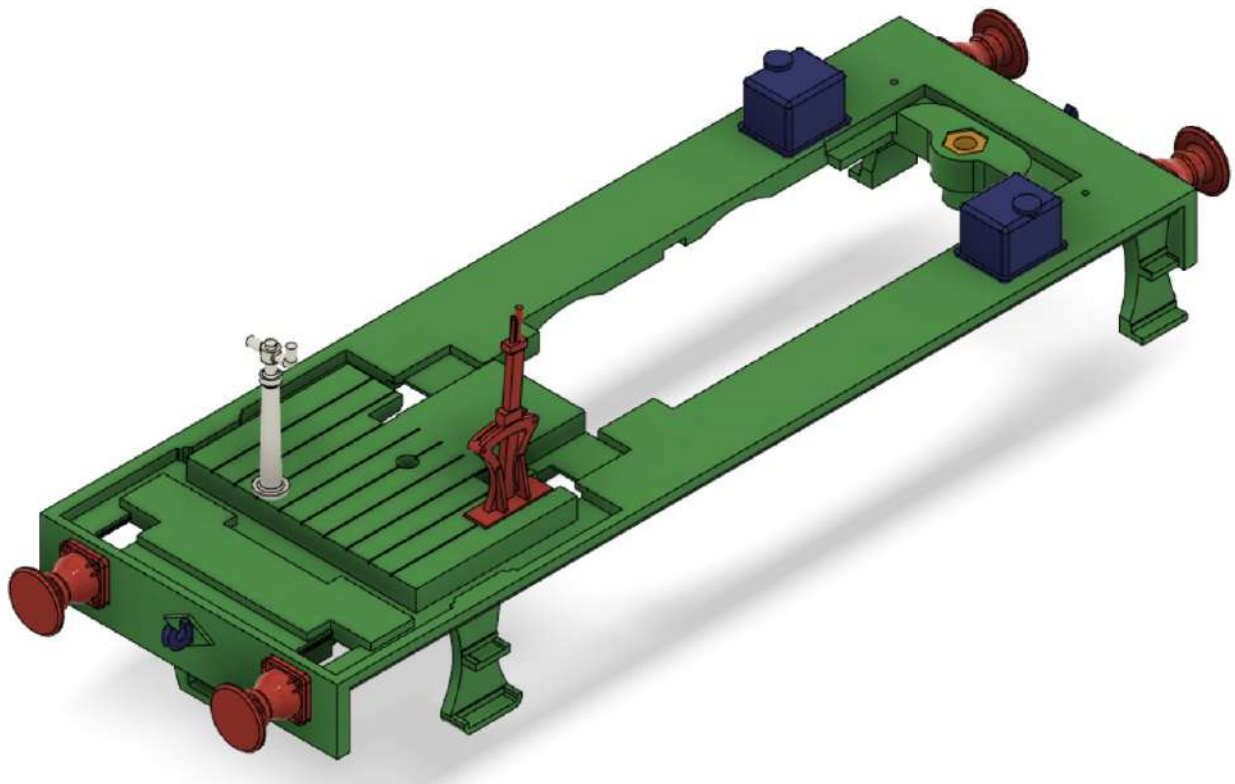
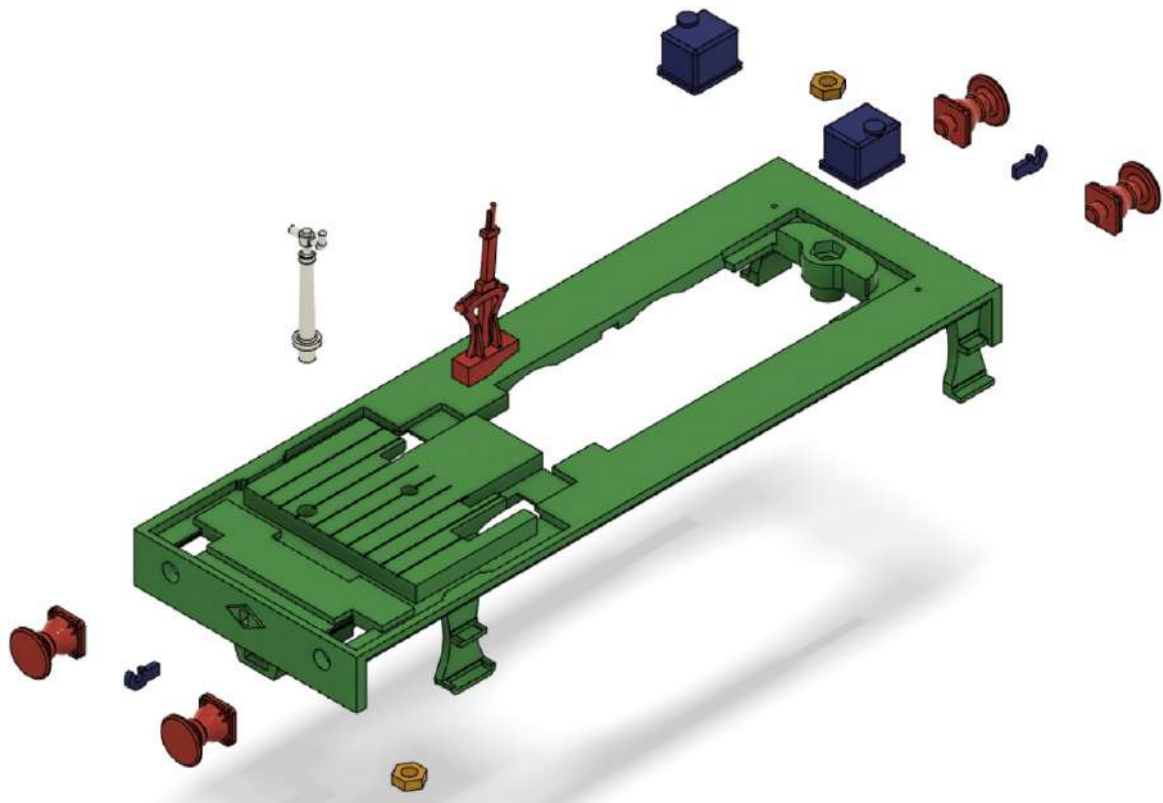
Clean up all edges and ensure a flush fitment before adding glue - e.g. the sandboxes may



need to be filed flat on the underside.

There are two 10BA nuts that need to be glued in to the recesses in the running board - use the glue sparingly as getting glue in the threads can be a nightmare.

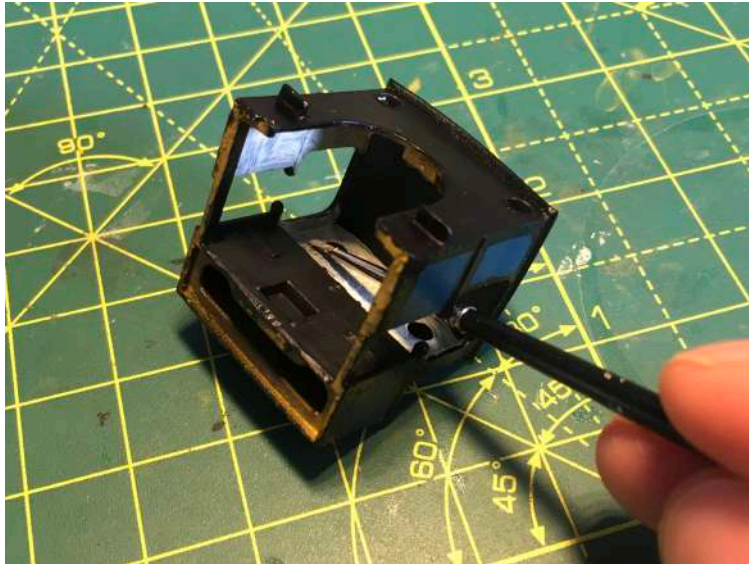
The tang of the coupling hooks should be cut down to 2-3mm long to avoid clashing with the chassis.



*Note that one 10BA nut goes in to the top, and one from underneath.
Use the bolts to assist with alignment.
The bolt for the rear mount needs to be cut down to approximately 9mm in length to avoid protruding through the cab floor.
However we have tested using just the front mounting bolt on its own, and as long as it is not overtightened, it does hold the body on.*

CAB

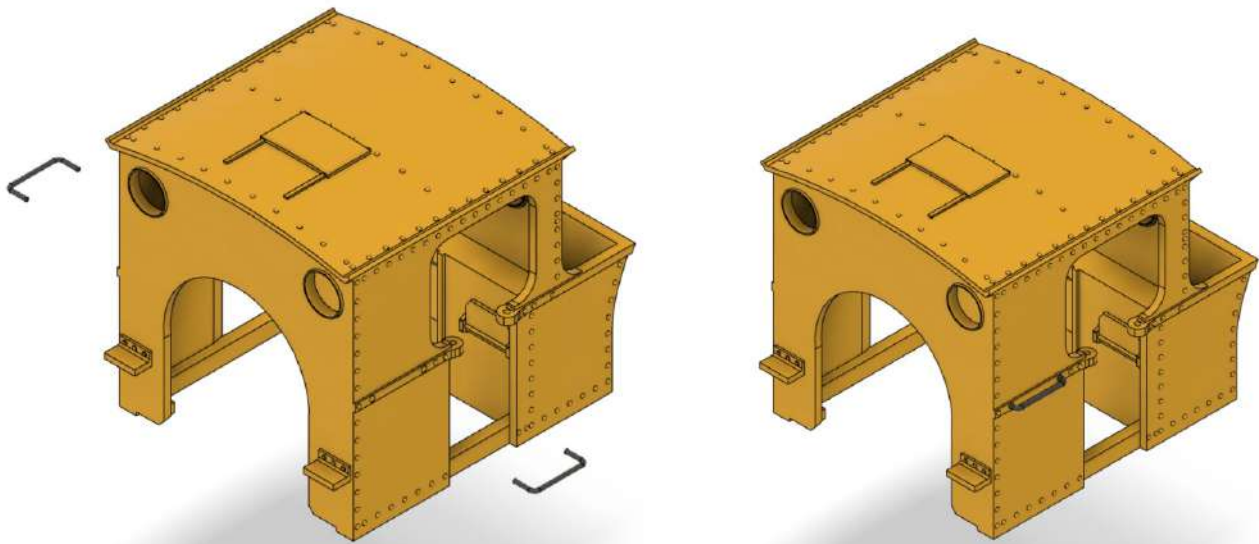
The cab interior should be painted and the cab interior details fitted before the cab is attached to the running board.



Painting the cab interior

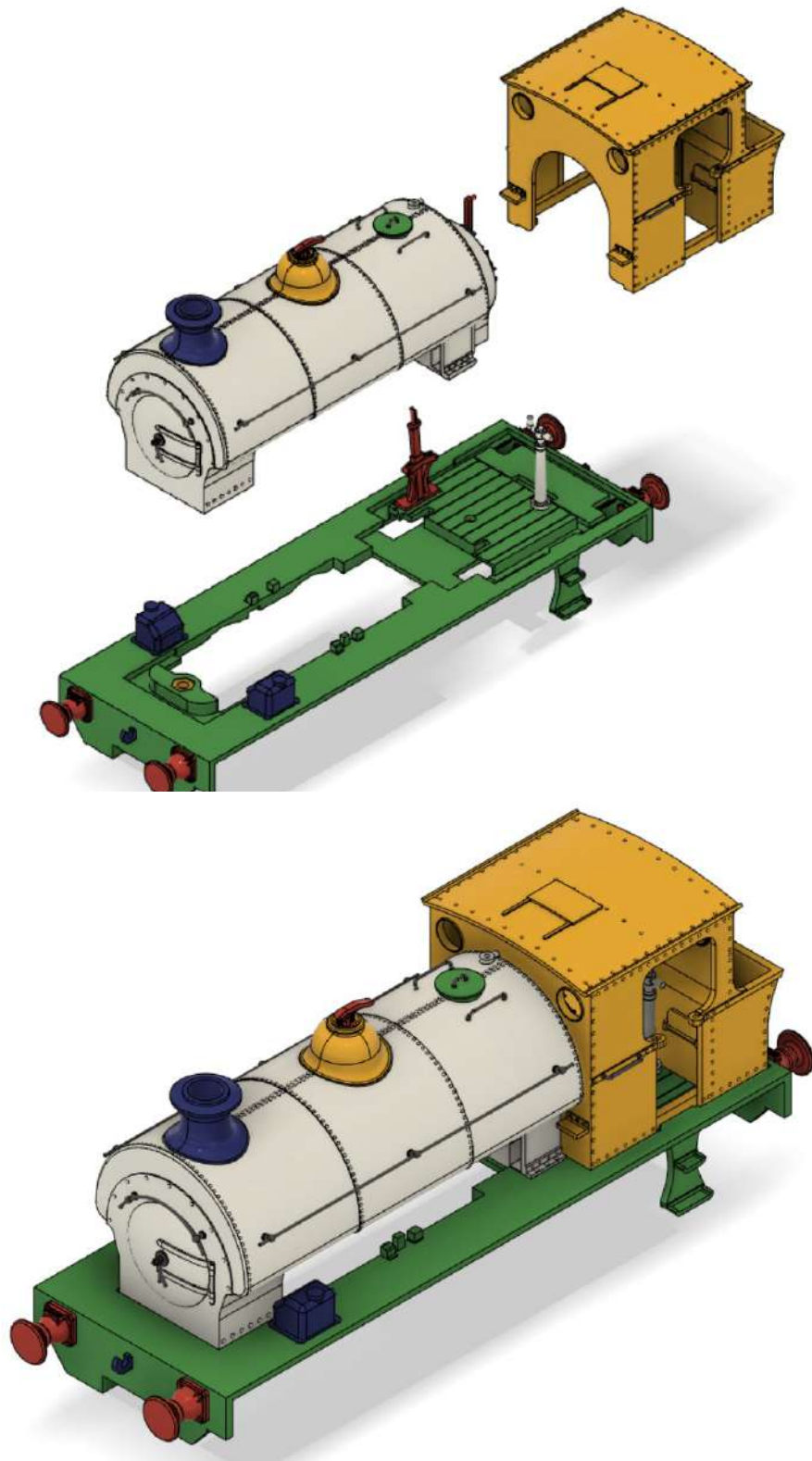
ROUND tank locomotives had cabside handrails, these were not on the SQUARE tank locos as the cabs are wider.

The dimples should be drilled out to .45mm holes 6mm apart, take extra special care when drilling these!



MAIN COMPONENTS

Glue cab onto saddletank, then both onto the running board using the recesses in the running board for alignment.

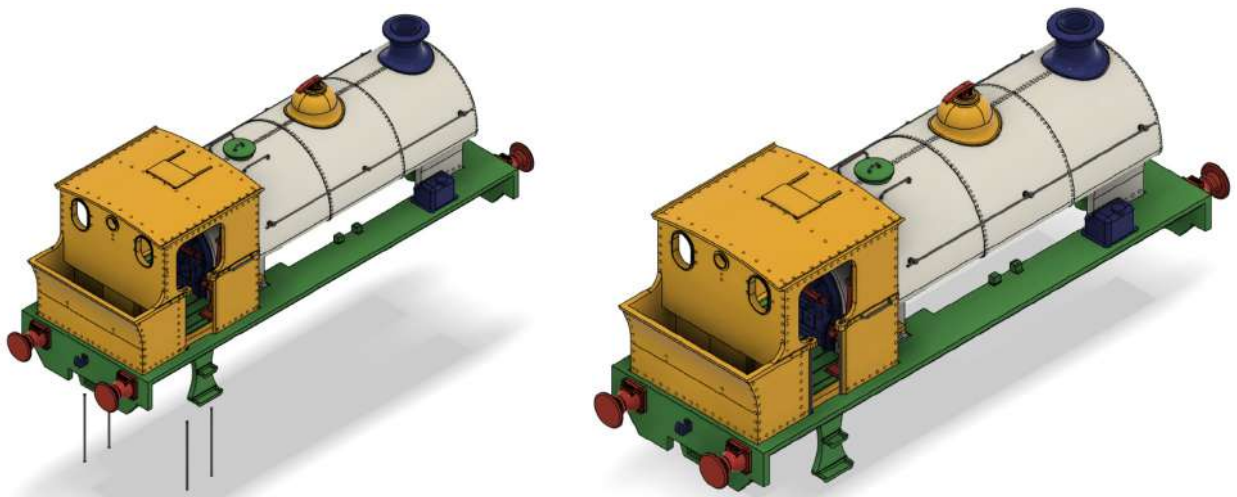


VERTICAL HANDRAILS

The cab cutout vertical handrails are mounted AFTER the cab and boiler have been mounted to the running board. There are holes in the bottom of the footplate to slide the handrail wire through. Mark the length, then snip the wire, slide it in again and it should locate in the top holder as shown. Add a blob of glue to the underside and that should hold it in.



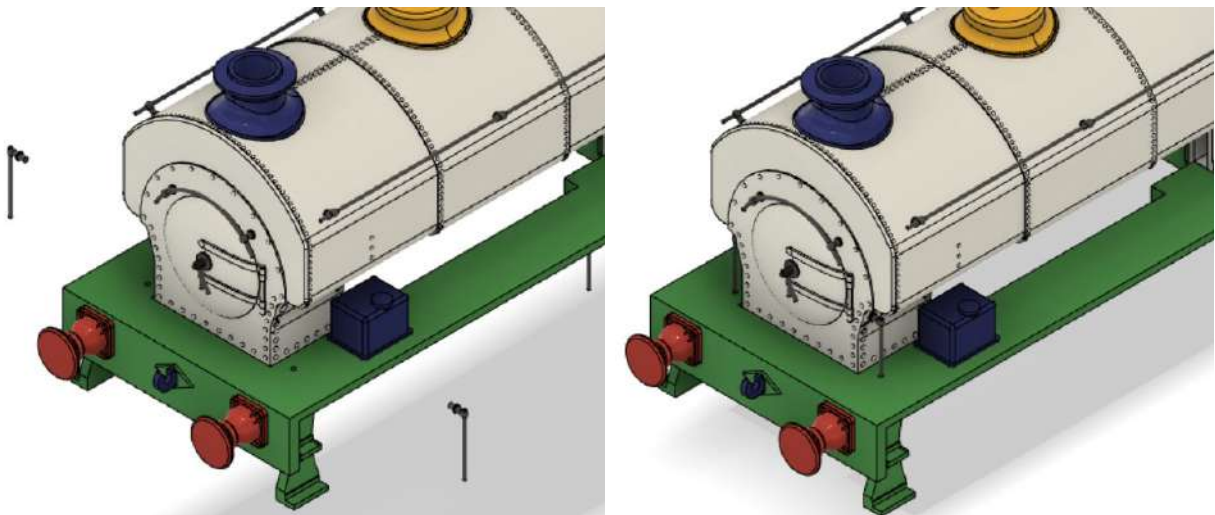
Measuring the vertical handrail length by sliding it through the hole in the footplate. Note how it locates snugly in the top holder.



This process is the same for the front smokebox side handrails on the late (square) tanks with the addition of a single handrail knob to the top of each one that mounts to the smokebox side.

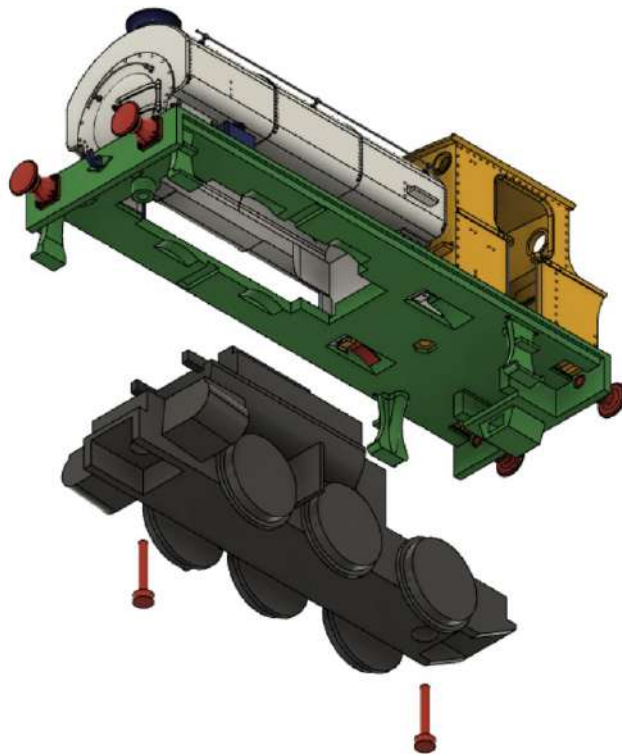


Close-up to show location of smokebox handrail mounting points



Slide the handrail wire through the running board, add the handrail knob and glue into place.

MOUNTING THE BODY TO THE CHASSIS



No modification to the Hornby Peckett B2 chassis is necessary. The B4 kit uses the same mounting holes.

The 10BA bolts will go through the chassis and into the nuts to hold the body on.

On SQUARE tank locos the clearance between the front steps and the cylinders is minimal, take care during assembly to avoid knocking the cylinder lubricators off. Not all B4s had front steps so you may wish to remove them.

OPTIONAL CHASSIS MODIFICATIONS

It is possible to alter the shape of the Peckett cylinders to give them the more rounded Avonside look by using a knife to shave off the vertical section of cylinder cladding, and then sanding smooth.

The Peckett B2 had 3ft 7in wheels whereas the Avonside B4s had 3ft wheels. It is possible to fit Hornby Peckett W4 (3ft 1in) wheels to the chassis, the gears do mesh, though alternative pickups would need to be fitted and NEM pockets would be lower. If scale wheels are fitted, the buffer mounting holes will need to be elongated upwards and the buffers attached with the top face level with the running board to have them at the correct height.

**WE HOPE YOU ENJOY YOUR MODEL!
HERE ARE SOME MORE FOR INSPIRATION...**

